
Trunk Optimization before answer

Trunk Optimization before answer (TRO) enhances routing on PRI and ISL routes for redirected calls. Trunk Optimization before answer (TRO) occurs when a direct call is made from the originating to the redirection telephone, from Meridian 1 to Meridian 1 machines.

Trunk Optimization before answer (TRO) only operates when Network Call Redirection is also enabled in your system.

TRO applies to the following call redirections:

- Network Call Forward All Calls (NCFAC)
- Network Call Forward No Answer (NCFNA)
- Network Hunting (NHNT)

With supporting network call redirection features enabled on each node, TRO can work as shown in Figure 86.

Case 1

The originating telephone A calls a remote telephone B over a PRI/ISL route (1), and due to Network Call Forward All Calls (NCFAC), Network Call Forward No Answer (NCFNA), or Network Hunting (NHNT), the call is forwarded to telephone C over route 2.

When TRO is enabled at switch B, messages are sent from the redirecting node (B) to the originating node (A) with the following information:

- redirection number
- redirection reason
- redirection counter

If the originating node does not support Trunk Optimization, the node sends a message rejecting TRO, and the call proceeds on the current route. The redirecting node then cancels TRO routing.

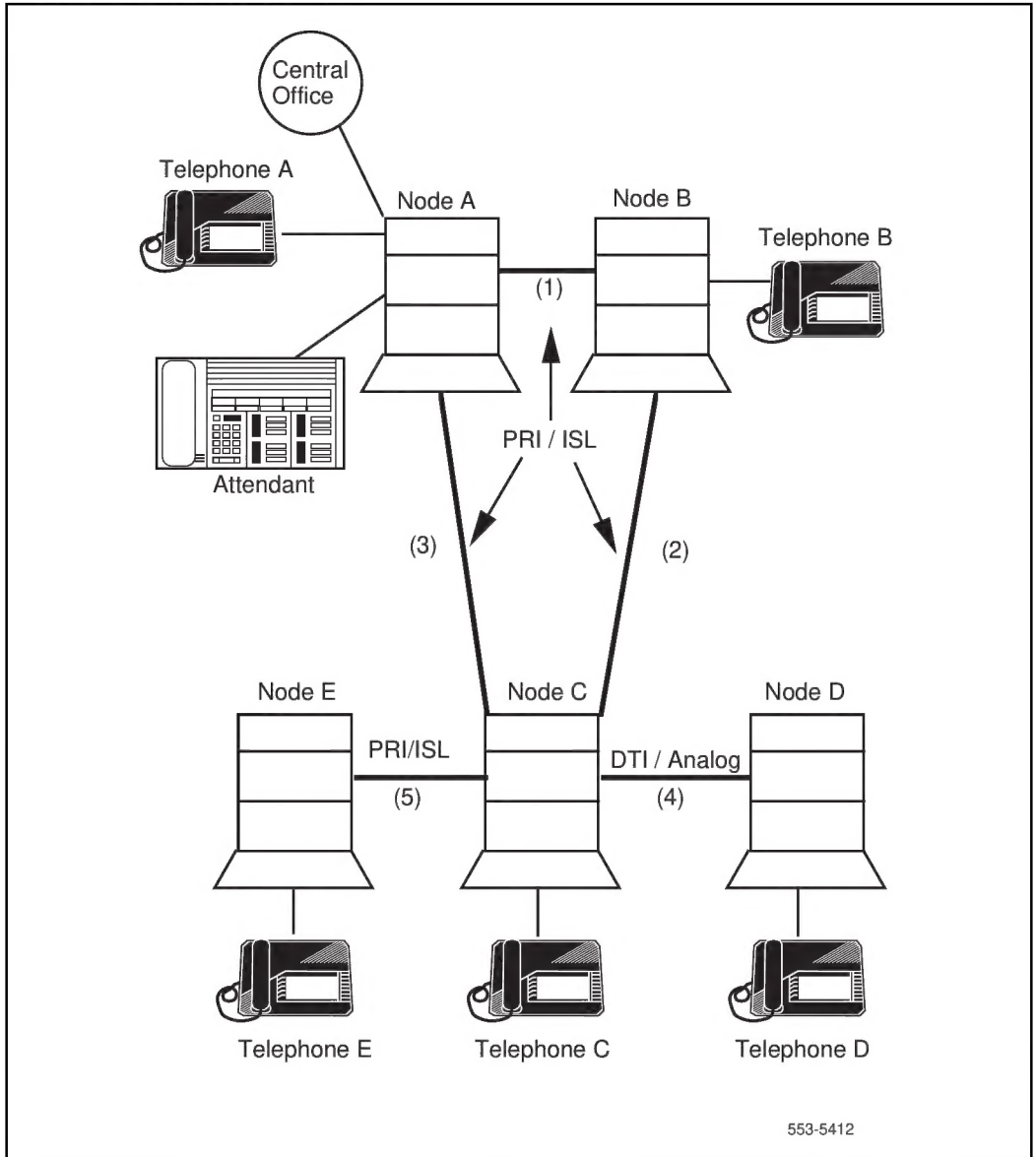
If node A has TRO enabled, and has a first choice route member available, and the redirection counter does not exceed the limit, the system sends back a message accepting TRO. The redirecting node sends a message to release the connection, the originating node sends a message confirming that the original connection (1) is dropped. The originating node also establishes a direct connection to telephone C over route 3.

In this case, the switch routes 1 and 2 are available for additional calls.

Case 2

The originating telephone A calls remote telephone E over PRI/ISL routes (3 and 5), and due to Network Call Forward All Calls (NCFAC), Network Call Forward No Answer (NCFNA), or Network Hunting (NHNT), the call forwards to telephone C over a PRI/ISL route (5). When node A accepts the TRO request, node A establishes a direct connection to node C over route 3. In this case, both connections over route 5 are dropped, and the route is available for other calls.

Figure 86
Trunk Optimization examples



Operating parameters

TRO is only supported before the call is answered.

TRO must be supported on all the nodes involved, by responding YES to the TRO prompt in the Route Data Block (RDB), LD 16. Also, each telephone redirecting the call must have a Call Forward/Hunt feature allowed. The TRO operation is not supported if the originating telephone and the redirection telephone reside on the same node.

Trunk routes targeted for optimization must be listed in the Route List Index (RLI entry 0).

Only ISDN PRI/ISL trunks are supported. If an analog or digital trunk (not controlled by a D-channel) is used between the originating and redirecting node, TRO does not operate. The call continues on the original path.

Trunk Optimization operates independently of the telephone type used for a call. TRO works for both voice and data calls between Meridian 1 machines.

Only Meridian 1 to Meridian 1 connections are supported. Non-Meridian 1 switches can operate as tandem switches if they can send along the TRO messages.

When the call is redirected, a 2-second timer begins within the redirecting system, waiting for a responding message from the originating node. If the timer expires, the call continues along the original path, and TRO does not operate.

Carefully analyze traffic estimates for all routes targeted for TRO to ensure that enough trunks and routes are available for all routing possibilities.

TRO is not supported with mixed dialing plans. Use caution when implementing TRO on a network using UDP and CDP at the same time. Because location codes are not used between CDP locations, TRO may direct calls to the wrong location. Duplicate CDP DN's at other TRO locations may cause TRO to redirect the call to the wrong DN.

In Figure 86, assume nodes A and B share a CDP numbering plan, and nodes C, D, and E share a second CPD numbering plan. If TRO is desired between the two CDP groups, then *no* DN from *either* CDP network can be duplicated in the other CDP network.

Trunk Optimization *is not supported* for the following call types:

- DID trunk call at node A goes to telephone B on node B, that has NCFAC, NCFNA, NHNT to telephone C.
- DID trunk call from node A to telephone A, that has NCFAC, NCFNA, NHNT to telephone B, having NFAC, NCFNA, NHNT to telephone C.
- Telephone D calls telephone B, which is NCFAC, NCFNA, NHNT to telephone C when node D is connected by a non-ISDN link to node C.
- When the attendant extends a DID or incoming trunk call to telephone B and releases, and telephone B is CFNA to telephone C. After three rings, the call is forwarded, but not optimized, to telephone C.

If the attendant remains with the call, TRO functions.

- Telephone A uses Transfer or Conference to telephone B when telephone B has NCFAC, NHNT, NCFNA to telephone C.
- Calls to Meridian Mail autoattendant functions are not optimized because the call is viewed as answered.
- If redirecting the call increments the network redirection counter beyond the limits.
- AUTOVON calls.
- ACD Night Call Forward calls.
- ACD Interflow calls.

Feature interactions

With the exception of those discussed here, call redirection features are not affected or supported.

— Attendant calls

Attendant extended calls can allow or restrict TRO as shown in the following:

- Telephone A, a DID trunk, or an incoming trunk calls the attendant, and the attendant extends the call to telephone B, which has NCFAC, NHNT to telephone C. The call is optimized to telephone C.
- A DID trunk or an incoming trunk call to the attendant is extended to telephone B, and the attendant does not release the call. Telephone B has NCFNA to telephone C. After three rings, the call forwards to telephone C, and the attendant releases the call. The call is optimized to telephone C.

— BARS/NARS

BARS/NARS operation is not changed. BARS/NARS is used to determine route availability to terminate the optimized call. Only Uniform Dialing Plan (UDP) and Coordinated Dialing Plan (CDP) are supported by TRO. Direct Trunk Access Codes are not supported.

— Call Party Name Display

When a call is optimized, the name or number may not appear on the receiving party's display.

— Class of Service

It is important to program redirecting telephones with Class of Service (CLS) to allow call redirection.

— Dialed number display

Calls modified by Network Call Redirection and TRO may affect the display results on the answering telephone. The dialed number/name will not appear on the called telephone's display, despite having it allowed.

- Network Call Forward by Call Type (NCFCT)
Prior to X11 release 16, call type treatment (internal or external) is determined by the Route Class of Service (RCLS) prompt in LD 16, associated with the incoming trunk route. With X11 release 16 and later, for calls containing CLID in the setup message, the RCLS prompt is superseded by the numbering plan type identified within the setup message. Incoming trunk calls answered at node A prior to entering the tie trunk link using call modification contain a CLID as a result of the call modification, and may result in internal call treatment at the terminating node.

Refer to the “Network Call Redirection” on page 561. Be sure to consider this feature when configuring your network.

- Network Call Redirection (NCFAC, NCFNA, NHNT)
TRO depends on Network Call Redirection (NCRD) messages over the D-channel. Be sure to allow NCRD for all routes targeted for TRO calls. When a call is redirected using TRO, the redirection information is passed to the originating node. The redirection is suspended, and a direct connection is established. If a route is not available when the call is placed, the call may be blocked.
- Network Call Transfer
Trunk Optimization does not operate for Network Call Transferred calls. Station and attendant extended calls do not utilize TRO.
- Network Message Service
TRO occurs when Meridian Mail Call Sender is activated. No optimization takes place when through dialing or operator revert features are used because the calling DN is not provided to Meridian Mail with these features. When a call is optimized, the original called party information is included in the setup message of the call. This is the way Meridian Mail determines the intended receiver.

Feature packaging

TRO is packaged as an ISDN feature in Advanced Network Services (NTWK), package 148.

Feature implementation

Trunk Optimization is configured in LD 16.

Procedure 67

Respond to the following prompts in LD 16

Prompt	Response	Description
REQ	CHG	
TYPE	RDB	Route data block
CUST	0–99	Customer number
ROUT	nnn	Route number 0–511 for NT, XT, 61, 71, and 81 0–127 for ST, 21, STE, 21E
DTRK	YES, (NO)	Digital Trunk Route Must be YES to prompt ISDN
ISDN	YES, (NO)	ISDN option
NCRD	YES, (NO)	Network Call Redirection. Allows network call redirection messages to be sent (or blocks messages if NCRD = NO). Must be YES to prompt TRO.
TRO	YES, (NO)	Trunk Optimization
